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Registration of PD 93001, PD 93002, PD 93003, and PD 93004 Germplasm Lines of Upland Cotton with Brown Lint and High Fiber Quality

Four breeding lines of upland cotton (*Gossypium hirsutum* L.), PD 93001, PD 93002, PD 93003, and PD 93004 (Reg. no. GP-595 through GP-598, PI 573281 through PI 573284, respectively), that combine brown lint and improved fiber quality were developed at the Pee Dee Research and Education Center, Florence, SC. These lines were released in 1993 by the USDA-ARS and the South Carolina Agricultural Experiment Station.

PD 93001, PD 93002, PD 93003, and PD 93004 were derived from the cross of a brown-lint cotton accession (collected in Mexico by M.J. Lukefahr) and 'PD-3'. PD-3 (2) originated from the cross PD 9363/9240. PD 9240 is a sister selection of 'SC-1' (3), while PD 9363 resulted from a complex composite cross including 'Carolina Queen', Triple Hybrids 108 and 171, AHA 6-1-4, Earlistaple, Sealand 542, and C 6-5 (1). PD-3 is a southeastern cultivar combining high lint yield and superior fiber strength and length. The brown-lint accession has short, weak fiber.

The four germplasm lines originated from single-plant selections in the F_2 generation. The two parents were used as standards for the comparison of fiber properties. The 50 and 2.5% span lengths of the four germplasm lines are greater than those of the brown-lint parent and equal to or slightly less than PD-3. Fiber strength is equivalent to PD-3 and is a major improvement over the brown-lint parent. Fiber elongation of PD 93001 and PD 93002 is less than the brown-lint parent and equal to PD-3. Fiber elongation of PD 93003 is intermediate between the parents, while that of PD 93004 is equal to the brown-lint parent and greater than PD-3. Micronaire reading of PD 93001, PD 93002, and PD 93003 is greater than the brown-lint parent and equivalent to PD-3, while that of PD 93004 is equivalent to the brown-lint parent and less than PD-3.

These four germplasm lines represent a major improvement in fiber strength and length over the brown-lint parent. These lines should be useful to cotton breeders and geneticists as a source of brown lint with improved fiber properties.

Seed (25 g) of these germplasm lines may be obtained from the corresponding author. Recipients of seed are asked to appropriately acknowledge the source of the germplasm if it is used in the development of new germplasm, cultivars, or hybrids.

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References and Notes

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4. O.L. May, USDA-ARS, and S.H. Roach, USDA-ARS (retired), P.O. Box 3039, Florence, SC 29502-3039; C.C. Green, Delta and Pine Land Co., P.O. Box 1529, Hartsville, SC 29550; and B.U. Kittrell, Pee Dee Res. and Educ. Ctr., Route 1, Box 531 Florence, SC 29501. Registration by CSSA. Accepted 30 Sept. 1993. *Corresponding author.

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